

WHAT IS CLAIMED IS:

1. A proxy network control apparatus for substituting
for service equipment providing predetermined services
5 to user terminal, and executing functions complementing
or expanding the functions of the service equipment,
comprising:

a packet monitoring unit for monitoring packets
interchanged between the user terminal and the service
10 equipment; and

an execution unit for determining and executing the
functions complementing or expanding, based on packets
monitored by the packet monitoring unit.

15 2. A proxy network control apparatus for executing
functions complementing or expanding functions of service
equipment as a substitute for the service equipment by
controlling network equipment transferring packets
interchanged between a user terminal and the service
20 equipment, arranged between the user terminal and the
service equipment providing predetermined services to the
user terminal, comprising:

a packet monitoring unit for monitoring packets
interchanged between the user terminal and the service
25 equipment;

a service control unit for determining the functions
complementing or expanding based on the packets monitored

by the packet monitoring unit; and

an external equipment control unit for controlling the network equipment based on the functions determined by the service control unit.

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3. The proxy network control apparatus according to claim 2, wherein

the service equipment is a DHCP server, wherein

the packet monitoring unit monitors packets

10 containing addresses issued from the service equipment to the user terminal, wherein

the service control unit determines an access regulation function for allowing the packets having addresses issued by the service equipment as the source addresses to pass and not allowing the packets having other addresses as the source addresses to pass, based on the packets monitored by the packet monitoring unit, and wherein

20 the external equipment control unit controls the network equipment so as to execute the access regulation function.

4. The proxy network control apparatus according to claim 2, wherein

25 the user terminal is a mobile communication terminal having a home address of its home network, wherein

the network equipment is a firewall which allows

packets having predetermined source addresses to pass and which does not allow other packets to pass among packets transmitted from an external network of the home network to the exterior, wherein

5 the packet monitoring unit monitors packets containing the home address of the user terminal, interchanged between the user terminal having moved into the external network and a home agent of the home network, wherein

10 the service control unit determines a function for releasing access regulation such that the packets having the home address are passed, based on the packets monitored by the packet monitoring unit, and wherein

 the external equipment control unit controls the
15 network equipment so as to execute the function for releasing the access regulation.

5. The proxy network control apparatus according to claim 2, wherein

20 the user terminal is an IPv6 terminal, wherein

 the service equipment is an authentication server for executing authentication of a created IP address of the user terminal, wherein

 the packet monitoring unit monitors packets
25 containing IP addresses authenticated by the service equipment, wherein

 the service control unit determines a function for

releasing access regulation such that the packets having the IP addresses as the source addresses are passed, based on the packets monitored by the packet monitoring unit, wherein

5 the external equipment control unit controls the network equipment so as to execute the function for releasing the access regulation.

6. The proxy network control apparatus according to claim
10 5, further comprising an address transmission unit for creating an IP address of the user terminal and transmitting it to the user terminal, or for transmitting a network prefix to the user terminal.

15 7. The proxy network control apparatus according to claim 2, wherein the functions determined by the service control unit include a function for recording predetermined information.

20 8. The proxy network control apparatus according to claim 2, wherein the functions determined by the service control unit include a function for transmitting messages to a predetermined network equipment or the service equipment.

25 9. A program for causing a computer to execute the steps of:

monitoring packets interchanged between a user

terminal and service equipment providing predetermined services to the user terminal; and

determining and executing functions for complementing or expanding the functions of the service equipment based
5 on the monitored packets, in lieu of the service equipment.

10. A program for causing a computer for executing functions complementing or expanding functions of service equipment as a substitute for the service equipment by
10 controlling network equipment transferring packets interchanged between a user terminal and the service equipment, arranged between the user terminal and the service equipment providing predetermined services to the user terminal, to execute the steps of:

15 monitoring packets interchanged between the user terminal and the service equipment;

determining the functions for complementing or expanding based on the monitored packets: and

controlling the network equipment based on the
20 determined functions.

11. A network system comprising:

service equipment for communicating with a user terminal and providing predetermined services to the user
25 terminal; and

a proxy network control apparatus for monitoring packets interchanged between the user terminal and the

service equipment and executing functions complementing or expanding the functions of the service equipment based on the packets meeting predetermined conditions.

5 12. The network system according to claim 11, wherein the proxy network control apparatus is integrated in the service equipment.

13. A network system comprising:

10 service equipment for communicating with a user terminal and providing predetermined services to the user terminal;

network equipment arranged between the user terminal and the service equipment, for transferring packets
15 interchanged between the user terminal and the service equipment; and

a proxy network control apparatus for monitoring packets interchanged between the user terminal and the service equipment and for executing functions
20 complementing or expanding the functions of the service equipment as a substitute for the service equipment by controlling the network equipment based on the packets meeting predetermined conditions.

25 14. The network system according to claim 13, wherein the proxy network control apparatus is integrated in the service equipment.

15. The network system according to claim 13, wherein the service equipment is a DHCP server, wherein

the proxy network control apparatus monitors packets
5 containing an address distributed to the user terminal from the service equipment and controls the network equipment so as to allow the packets transmitted from the user terminal and having the address as the source address to pass and so as not to allow other packets to pass.

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16. The network system according to claim 13, wherein

the user terminal is a mobile communication terminal having a home address of a home network, wherein

the network equipment is network equipment allowing
15 the packets having a predetermined source address to pass and not allowing other packets to pass among the packets transmitted from an external network of the home network to the exterior, and wherein

the proxy network control apparatus controls the
20 network equipment so as to pass the packets containing the home address of the user terminal as the source address, based on the packets containing the home address of the user terminal interchanged between the user terminal moved into the external network and a home agent of the home
25 network.

17. The network system according to claim 13, wherein

the user terminal is an IPv6 terminal, wherein
the service equipment is an authentication server for
authenticating created IP address of the user terminal,
wherein

5 the proxy network unit controls the network equipment
so as to allow the packets having the IP address
authenticated by the service equipment as the source
address to pass.

10 18. The network system according to claim 17, wherein the
proxy network control apparatus further executes a function
for creating the IP address of the user terminal and sending
it to the user terminal, or for transmitting a network
prefix to the user terminal.

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